

*SHOW ME YOUR SMILE!*

## The Oral Health of Missouri's Children



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Office of Primary Care and Rural Health  
Oral Health Program

[www.dhss.mo.gov/oralhealth](http://www.dhss.mo.gov/oralhealth)

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# O ral Health of Missouri's Children

## Summary and Findings

During the 2004-2005 school year, the Missouri Department of Health and Senior Services conducted a statewide oral health survey of 3<sup>rd</sup> grade children enrolled in Missouri's public elementary schools plus children enrolled in Missouri's state operated schools for children with special needs. Dental professionals screened 3,525 3<sup>rd</sup> grade children in 113 randomly selected elementary schools plus 442 children in 30 state operated schools. The screenings were completed using gloves, disposable dental mirrors and penlights. Following are the key findings.

### Key Findings

Dental decay is a significant health problem for Missouri's children.

- 55% of the 3<sup>rd</sup> grade children and 46% of the special needs children had cavities and/or fillings (decay experience)

Many children in Missouri are in need of dental care.

- 27% of the 3<sup>rd</sup> grade and special needs children had untreated tooth decay.

Many children in Missouri are attending school with infection or pain from dental disease.

- 5% of the 3<sup>rd</sup> grade children were in need of urgent dental care because of pain or infection. This could mean that more than 2,250 third grade children have pain or infection because of dental decay.
- Almost 12% of parents reported that their child had missed school because of dental pain.

While dental sealants are a proven method for preventing decay, the majority of Missouri's 3rd grade children do not have access to this valuable preventive service.

- Only 29% of the 3<sup>rd</sup> grade children had dental sealants

African American children have poorer oral health and less access to preventive dental sealants.

- Compared to white children, African American children had a significantly higher prevalence of decay experience and untreated decay; but a significantly lower prevalence of protective dental sealants. In addition, more than twice as many African American children were in need of urgent care because of pain or infection (8% vs. 3%).

Children from low-income schools have poorer oral health and less access to preventive dental sealants.

- Compared to children from higher income schools (<25% eligible for free or reduced price meals), children in low-income schools ( $\geq 75\%$  eligible for free or reduced price meals) had a significantly higher prevalence of decay experience and untreated decay; plus a lower prevalence of dental sealants.

Considerable progress must be made if Missouri is to meet the Healthy People 2010 oral health objectives.

## Methods

### Sampling

*Third Grade Sample:* An electronic data file of all public elementary schools in Missouri was obtained from the Missouri Department of Elementary and Secondary Education. The data file, which was for the 2002-2003 school year, contained the following information for each school – district, county, total enrollment, 3<sup>rd</sup> grade enrollment, 6<sup>th</sup> grade enrollment, percent of children participating in the free or reduced price lunch program, enrollment by race/ethnicity, and school address. During the 2002-2003 school year, there were 947 schools in Missouri with 3<sup>rd</sup> grade (56,826 students). The sampling frame was limited to the 895 schools with 10 or more students in 3<sup>rd</sup> grade (56,517 students). Implicit stratification by percent of children eligible for the free or reduced price lunch (FRL) program was used to select a probability sample of 121 schools. Selecting a sample using implicit stratification assures that the sample is representative of the state's schools in terms of free/reduced price lunch participation. If a school refused to participate, a replacement school within the same sampling strata was selected. If the sample school plus one replacement school refused to participate, no data were collected in that sampling stratum. Data is available for 113 of the 121 sampling strata.

*Sixth Grade Sample:* The data for 6<sup>th</sup> grade children is based on a convenience sample and should not be considered representative of the state's 6<sup>th</sup> grade students. If a school selected for the 3<sup>rd</sup> grade probability sample had a 6<sup>th</sup> grade, these students were also screened. Of the 722 schools in Missouri with 6<sup>th</sup> grade students only 339 were included in the sampling frame used for the 3<sup>rd</sup> grade probability sample.

*State Schools for Children with Special Needs:* The data for the special needs sample is based on a convenience sample of state schools for children with special needs. Children enrolled in the state's 30 largest schools were screened.

### Data Analysis

*Third Grade:* Data analysis was completed using Epi Info Version 3.2.2. Epi Info is a public access software program developed and supported by the Centers for Disease Control and Prevention. The data were adjusted for missing sampling strata and non-response within each school. For the non-response sampling weight, the number of children enrolled in each school was divided by the number of children screened. For missing sampling strata, the number of children enrolled in the missing strata school was divided by two with this number added to the enrollment figures of the schools in the sampling strata immediately before and after the missing strata. Analyses were completed assuming simple random sampling procedures without consideration for primary sampling units or stratification.

*Sixth Grade:* Data analysis was completed using Epi Info Version 3.2.2. Since data were based on a convenience sample, the data were not adjusted and confidence intervals were not generated.

*State Schools for Children with Special Needs:* Data analysis was completed using Epi Info Version 3.2.2. Since data were based on a convenience sample, the data were not adjusted and confidence intervals were not generated.

### Screening Methods

Children in participating schools and grades were given a letter of explanation, consent form and questionnaire to take home to their parents. If a parent returned the consent form with "yes" checked, the child was screened (positive consent). Dental professionals completed the screenings using gloves, penlights, and disposable mouth mirrors. The diagnostic criteria outlined in the Association of State and Territorial Dental Directors publication *Basic Screening Surveys: An Approach to Monitoring Community Oral Health* were used ([www.astdd.org](http://www.astdd.org)).

### Parent Questionnaire

Parents were asked to complete a short questionnaire designed to obtain information on demographics, dental visit information and dental insurance coverage. The parent questionnaires were not linked to the oral health screening forms.

## THE ORAL HEALTH OF MISSOURI'S 3<sup>RD</sup> GRADE CHILDREN

### Overall Results

Of the 121 schools in the sample, 113 agreed to participate. There were 7,266 children enrolled in the participating schools with 3,525 children screened; a 49% response rate. In terms of both eligibility for the free and/or reduced price lunch program and the racial mix of students, the participating schools did not differ from all elementary schools in the state. Refer to Tables 1.1 and 1.2.

The majority of the children screened (97%) were either 8 or 9 years of age. About half of the children (49%) were male, 84% were white and 9% were African-American. Refer to Table 1.3.

Fifty-five percent of the children screened had decay experience (untreated decay or fillings) in their primary and/or permanent teeth while 27% had untreated decay at the time of the screening.<sup>1</sup> About 28% of the children needed dental treatment including 5% in need of urgent dental care because of pain or infection. Refer to Table 1.4.

Only 29% of the children had a dental sealant on at least one permanent molar. Dental sealants provide an effective way to prevent tooth decay on the chewing surfaces of molars (back teeth), which are most vulnerable to cavities. A clear resin is used to cover the "pits and fissures" on the top of the teeth so that cavity-causing bacteria cannot reach areas that are difficult to clean and for fluoride to penetrate. Refer to Table 1.4.

### Impact of Race

Table 1.5 compares the oral health of white children with African American children. In Missouri, African American children have a significantly higher prevalence of decay experience, untreated decay, and urgent treatment needs; but a significantly lower prevalence of preventive dental sealants.

### Impact of Ethnicity

Table 1.6 compares the oral health of non-Hispanic children with Hispanic children. In Missouri, Hispanic children have a significantly higher prevalence of dental treatment needs but a significantly lower prevalence of preventive dental sealants.

### Impact of Socioeconomic Status

Eligibility for the free and/or reduced price lunch (FRL) program is often used as an indicator of overall socioeconomic status. To be eligible for the FRL program during the 2004-2005 school year, annual family income for a family of four could not exceed \$34,873.<sup>2</sup> While information on eligibility for the FRL program is not available at the student level it is available at the school level. The schools taking part in the oral health survey were categorized into four income levels based on the percentage of children eligible for the FRL program.

- Higher income: less than 25% of students eligible
- Moderate income: 25% - 49.9% of students eligible
- Middle-low income: 50% - 74.9% of the students eligible
- Low income: 75% or more of the students eligible

Children at higher income schools, compared to children at all other income schools, had a significantly lower prevalence of decay experience, untreated decay and urgent treatment needs; but a higher prevalence of protective dental sealants. Of note is the direct

relationship between income status of the school and prevalence of untreated decay with the prevalence rising as the percent of students eligible for the FRL program increased. Refer to Table 1.7.

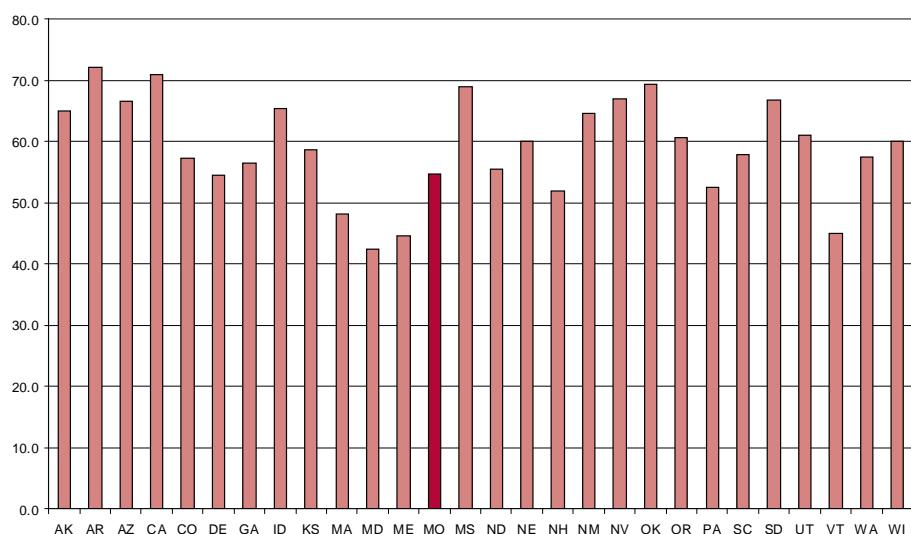
### Comparison to Healthy People 2010 Objectives

The National Oral Health Objectives for the Year 2010 (Healthy People 2010) outline several oral health status objectives for young children. For six- to eight-year-old children there are three primary oral health status objectives:

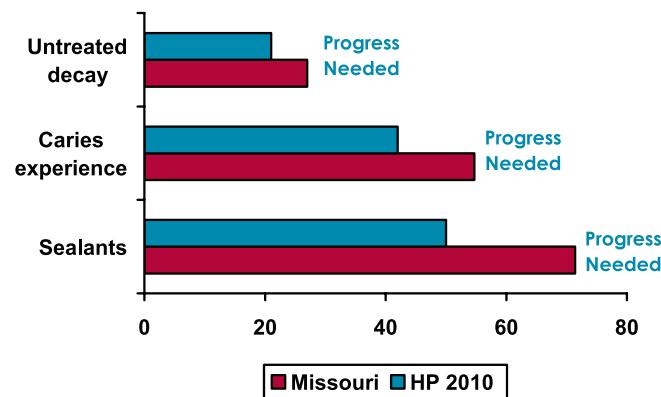
- To decrease the proportion of children who have experienced dental decay in permanent or primary teeth to 42%.
- To decrease the proportion of children with untreated dental decay in permanent or primary teeth to 21%.
- To decrease the proportion of eight-year-olds *without* protective sealing of the occlusal surfaces of permanent molar teeth to 50%.

It should be noted that the Missouri Oral Health Survey was not designed to be representative of 6-8 year old children; with the majority of children screened being 8-9 years of age. Fifty-five percent of the 3<sup>rd</sup> graders screened in Missouri had experienced dental decay – substantially higher than the HP2010 objective of 42%.

**Figure 1**  
**Percent of Children with Decay Experience - Missouri Compared to Other States**



Twenty-seven percent of Missouri's 3<sup>rd</sup> graders had untreated caries compared to the HP2010 objective of 21% and 71% of Missouri's 3<sup>rd</sup> graders *did not have* dental sealants compared to the HP2010 objective of 50%.



#### Comparison to Other States

Figures 1-3 (pages 4-6) compare the oral health of Missouri's third grade children with the oral health of children from several other states. Each of the states represented in the figures gathered oral health status information using the same protocols as Missouri.

## The Oral Health of 6<sup>th</sup> Grade Children Screened in Missouri

### Overall Results

Sixth grade children were screened using a convenience sample of 48 elementary schools. Because a convenience sample (rather than a probability sample) was used, the results should be viewed with caution.

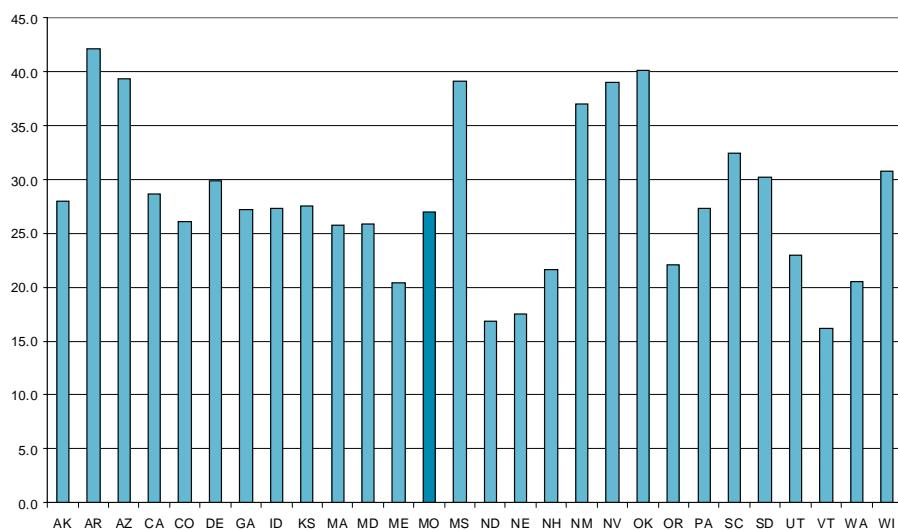
The 48 participating elementary schools had a 6<sup>th</sup> grade enrollment of 2,962 of which 832 were screened; a 28% response rate. The 48 participating schools differed from the 722 elementary schools in Missouri with 6<sup>th</sup> grade students in terms of eligibility for the free and/or reduced price lunch (FRL) program and the racial mix of students. The participating schools had a higher proportion of students eligible for the FRL program (49% vs. 42%) and a lower proportion of white non-Hispanic students (60% vs. 75%). Refer to Tables 2.1 and 2.2.

The majority of the children screened (96%) were either 11 or 12 years of age. About half of the children (49%) were male, 78% were white and 17% were African-American. Refer to Table 2.3.

Forty-five percent of the children screened had decay experience (untreated decay or fillings) in their primary and/or permanent teeth while 22% had untreated decay at the time of the screening. About 23% of the children needed dental treatment including 3% in need of urgent dental care because of pain or infection. Refer to Table 2.4.

Only 30% of the children had a dental sealant on at least one permanent molar. Dental sealants provide an effective way to prevent tooth decay on the chewing surfaces of molars (back teeth), which are most vulnerable to cavities. A clear resin is used to

Figure 2  
Percent of Children with Untreated Decay - Missouri Compared to Other States



cover the “pits and fissures” on the top of the teeth so that cavity-causing bacteria cannot reach areas that are difficult to clean and for fluoride to penetrate. Refer to Table 2.4.

### Impact of Race

Table 2.5 compares the oral health of white children with African American children. Of the 6<sup>th</sup> grade children screened, African American children had a higher prevalence of decay experience and untreated decay.

### Impact of Socioeconomic Status

Eligibility for the free and/or reduced price lunch (FRL) program is often used as an indicator of overall socioeconomic status. To be eligible for the FRL program during the 2004-2005 school year, annual family income for a family of four could not exceed \$34,873.<sup>3</sup> While information on eligibility for the FRL program is not available at the student level it is available at the school level. The schools taking part in the oral health survey were categorized into four income levels based on the percentage of children eligible for the FRL program.

- Higher income: less than 25% of students eligible
- Moderate income: 25% - 49.9% of students eligible
- Middle-low income: 50% - 74.9% of the students eligible
- Low income: 75% or more of the students eligible

Sixth grade children at higher income schools, compared to 6<sup>th</sup> graders at all other income schools, had a lower prevalence of decay experience and untreated decay. Of note is the direct relationship between income status of the school and prevalence of untreated decay with the prevalence rising as the percent of students eligible for the FRL program increased. Refer to Table 2.6.

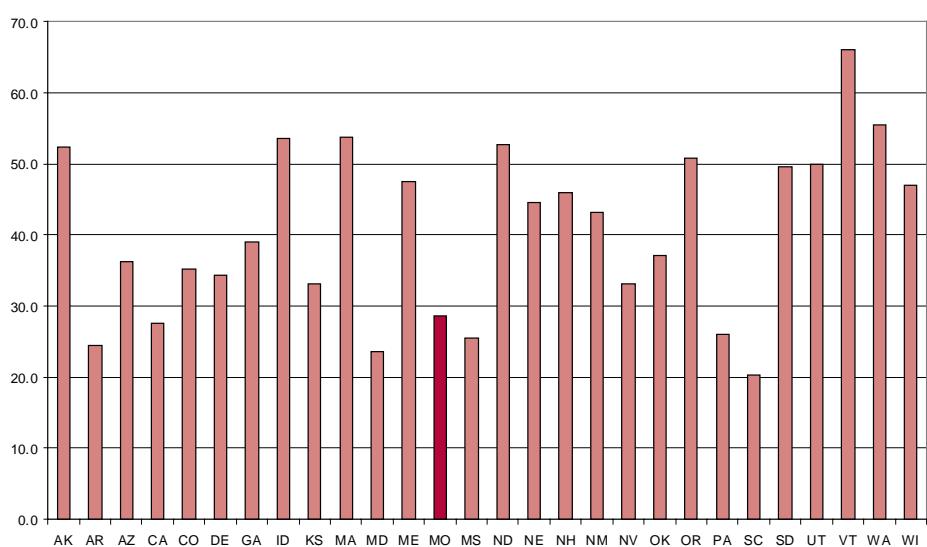
### The Oral Health of Special Needs Children Screened in Missouri

Children were screened at 30 of Missouri’s state operated schools for children with special needs. The children screened ranged in age from 5-21 years with a mean age of 13 years. More than half of the children (59%) were male, 74% were white and 19% were African-American. Refer to Table 3.1.

Forty-six percent of the children screened had decay experience (untreated decay or fillings) in their primary and/or permanent teeth while 26% had untreated decay at the time of the screening. About 30% of the children needed dental treatment including 6% in need of urgent dental care because of pain or infection. Refer to Table 3.2.

Only 9% of the children screened had a dental sealant on at least one permanent molar. Dental sealants provide an effective way to prevent tooth decay on the chewing surfaces of molars (back teeth), which are most vulnerable to cavities. A clear resin is used to cover the “pits and fissures” on the top of the teeth so that cavity-causing bacteria cannot reach areas that are difficult to clean and for fluoride to penetrate. Refer to Table 3.2.

**Figure 3**  
**Percent of Children with Dental Sealants - Missouri Compared to Other States**



Because decay experiences increases with age, the oral health status data for the special needs children were stratified by age group (Table 3.3). While 30% of the 5-9 year olds had decay experience the proportion with a history of decay increased to 60% among those 15 years and older. The percent of children with untreated decay also increased with age from 12% in the youngest group to 35% in the oldest group. The percent of children with dental sealants was low among all of the age cohorts.

## Dental Utilization Access to Care and Dental Insurance

### Among Missouri's 3<sup>rd</sup> and 6<sup>th</sup> Grade Students

At the 113 participating elementary schools, parents were asked to complete a short questionnaire designed to obtain information on demographics, dental utilization, access to dental care and dental insurance coverage. A total of 2,259 questionnaires were returned.

**Dental Visit:** Parents were asked if their child had a need to visit a dentist's office in the past 12 months. Fifty-nine percent reported a visit for routine checkup, 18% reported a visit for other services while 22% had no need to visit the dentist.

**Missed School:** Parents were asked if their child missed school for a dental appointment plus whether or not their child missed school because of dental pain. Twenty-one percent reported that their child had missed school for a dental appointment while 12% reported that their child had missed school due to dental pain.

**Wait for a Dental Appointment:** Most parents (64%) reported that they were able to get a dental appointment within 30 days while 12% reported waiting more than 60 days.

**Travel to Dental Appointment:** The majority of parents (79%) reported that one-way travel to their dentist was 20 miles or less. Only 7% reported having to travel more than 40 miles to the dentist.

**Dental Insurance:** Seventy-seven percent of the parents reported that their child had dental insurance coverage. Slightly over half (53%) reported having private insurance while 40% reported having Medicaid.

Parents of low-income and minority children were more likely to have reported no need to visit a dentist in the last year. A higher proportion of Medicaid recipients, compared to those covered by private dental insurance, reported waiting longer and traveling farther for dental appointments. Refer to Tables 4.1-4.5.

### Among Missouri's Special Need Children

At the 30 participating state schools for children with special needs, parents were asked to complete a short questionnaire designed to obtain information on demographics, dental utilization, access to dental care and dental insurance coverage. A total of 298 questionnaires were returned.

**Dental Visit:** Parents were asked if their child had a need to visit a dentist's office in the past 12 months. Fifty percent reported a visit for routine checkup, 20% reported a visit for other services while 31% had no need to visit the dentist.

**Missed School:** Parents were asked if their child missed school for a dental appointment plus whether or not their child missed school because of dental pain. Thirty-one percent reported that their child had missed school for a dental appointment while 4% reported that their child had missed school due to dental pain.

**Wait for a Dental Appointment:** Most parents (63%) reported that they were able to get a dental appointment within 30 days while 20% reported waiting more than 60 days.

**Travel to Dental Appointment:** The majority of parents (52%) reported that one-way travel to their dentist was 20 miles or less while 21% reported having to travel more than 40 miles to the dentist.

**Dental Insurance:** Eighty-six percent of the parents reported that their child had dental insurance coverage. Over half (59%) reported having Medicaid while 37% reported having private insurance coverage. Refer to Tables 4.6-4.7.

**Table 1.1**  
Participation in the Missouri Oral Health Survey

	Number of Schools	Number 3 <sup>rd</sup> Graders Enrolled	Number 3 <sup>rd</sup> Graders Screened	Response Rate
Sample Schools	121	7,861	3,525	44.8%
Participating Schools	113	7,266	3,525	48.5%

**Table 1.2**  
Enrollment and Free/Reduced Price Lunch Program Participation in all Missouri Elementary Schools with 3<sup>rd</sup> Grade Enrollment, Sample Schools and Participating Schools

	3 <sup>rd</sup> Grade Enrollment	Percent on FRL	Percent White non-Hispanic
Missouri Schools with 3 <sup>rd</sup> Grade (n=947)	56,826	46.4%	76.8%
Sample Schools (n=121)	7,861	42.7%	75.9%
Participating Schools (n=113)	7,266	45.2%	74.5%

Source: Missouri Department of Elementary and Secondary Education, 2002-2003 School Year

**Table 1.3**  
Age, Gender and Race/Ethnicity of 3<sup>rd</sup> Grade Children Screened

Variable	Number of Children With Valid Data	Mean or Percent
Age		
Mean (Standard Deviation)	3,501	8.54 (0.57)
Range		8-12 years
Gender		
% Female	3,508	51.3%
% Male		48.7%
Race		
% White		83.6%
% African American		9.4%
% Asian or Pacific Islander	3,470	1.3%
% American Indian/Alaska Native		0.1%
% Multiracial		2.7%
% Other		2.9%
Ethnicity		
% Not Hispanic	3,178	95.0%
% Hispanic		5.0%

**Table 1.4**  
Oral Health Status of Missouri's 3<sup>rd</sup> Grade Children Adjusted for Non-Participation and Non-Response

	Number with Data	Percent	95% CI
% with caries experience (any tooth)	3,435	54.7	53.6 - 55.8
% with caries experience (primary)	3,364	51.8	50.7 - 53.0
% with caries experience (permanent)	3,231	20.0	19.1 - 21.0
% with untreated decay (any tooth)	3,410	27.0	26.0 - 28.0
% with untreated decay (primary)	3,342	24.3	23.3 - 25.3
% with untreated decay (permanent)	3,210	10.7	10.1 - 11.5
% with dental sealants	3,440	28.6	27.6 - 29.6
% with unsatisfactory oral hygiene	3,275	20.2	19.3 - 21.2
Treatment Need			
% with no obvious problem	3,503	72.3	71.3 - 73.3
% needing early dental care		23.1	22.1 - 24.0
% needing urgent dental care		4.6	4.2 - 5.1

**Table 1.5**  
Oral Health Status of Missouri's 3<sup>rd</sup> Grade Children Stratified by Race Adjusted for Non-Participation and Non-Response

Variable	White (n=2,900)		African American (n=326)	
	%	95% CI	%	95% CI
% with caries experience	52.3	51.0 - 53.6	63.3	60.3 - 66.3
% with untreated decay	22.1	21.0 - 23.1	42.3	39.2 - 45.4
% with dental sealants	29.3	28.2 - 30.5	24.5	21.9 - 27.3
% with poor oral hygiene	18.7	17.7 - 19.7	24.9	22.3 - 27.7
% needing treatment	22.2	21.2 - 23.3	46.8	43.7 - 49.9
% needing urgent treatment	3.2	2.8 - 3.7	7.7	6.1 - 9.5

NOTE: The screening data file contains records for 2,900 white and 326 African-American children. Because of missing data, the sample size for each individual oral health indicator varies.

**Table 1.6**  
Oral Health Status of Missouri's 3<sup>rd</sup> Grade Children Stratified by Ethnicity Adjusted for Non-Participation and Non-Response

Variable	Not Hispanic (n=3,019)		Hispanic (n=159)	
	%	95% CI	%	95% CI
% with caries experience	54.4	53.2 - 55.6	56.8	51.2 - 62.2
% with untreated decay	25.8	24.8 - 26.9	28.5	23.7 - 33.8
% with dental sealants	28.6	27.6 - 29.7	20.0	15.9 - 24.8
% with poor oral hygiene	19.8	18.9 - 20.8	23.3	18.9 - 28.3
% needing treatment	26.8	25.8 - 27.9	33.2	28.2 - 38.6
% needing urgent treatment	3.6	3.2 - 4.1	3.5	1.9 - 6.3

NOTE: The screening data file contains records for 3,019 non-Hispanic and 159 Hispanic children. Because of missing data, the sample size for each individual oral health indicator varies.

**Table 1.7**  
Oral Health Status of Missouri's 3<sup>rd</sup> Grade Children Stratified by FRL Status of School Adjusted for Non-Participation and Non-Response

Variable	Percent of Students Participating in FRL Program			
	< 25.0%	25.0-49.9%	50.0-74.9%	≥ 75%
Number of schools	23	40	34	15
Number of children screened	630	1,611	825	242
% with caries experience	46.2 (43.9 - 48.4)	53.8 (52.1 - 55.6)	62.1 (59.9 - 64.3)	63.0 (58.4 - 66.5)
% with untreated decay	20.9 (19.1 - 22.8)	26.5 (25.0 - 28.1)	30.6 (28.5 - 32.8)	37.2 (33.7 - 40.8)
% with dental sealants	35.8 (33.6 - 38.0)	27.0 (25.5 - 28.6)	21.8 (20.0 - 23.8)	30.1 (26.9 - 33.6)
% with poor oral hygiene	16.6 (15.0 - 18.3)	15.6 (14.3 - 16.9)	31.1 (29.0 - 33.3)	23.2 (20.0 - 26.7)
% needing treatment	21.0 (19.3 - 22.9)	27.6 (26.3 - 29.4)	28.5 (26.5 - 30.7)	45.4 (42.7 - 49.1)
% needing urgent treatment	1.5 (1.0 - 2.2)	4.5 (3.8 - 5.3)	6.9 (5.8 - 8.2)	7.8 (6.0 - 10.1)

NOTE: Because of missing data, the sample size for each individual oral health indicator varies. Percent of students on FRL was missing for 1 school (Pick Elementary, 13 students).

**Table 2.1**  
Participation in the 6<sup>th</sup> Grade Component of the Missouri Oral Health Survey

	Number of Schools with 6 <sup>th</sup> Grade	Number 6 <sup>th</sup> Graders Enrolled	Number 6 <sup>th</sup> Graders Screened	Response Rate
Participating Schools	48	2,962	832	28.1%

Table 2.2

Enrollment and Free/Reduced Price Lunch Program Participation in all Missouri Elementary Schools with 6<sup>th</sup> Grade Enrollment, Sample Schools and Participating Schools

	6 <sup>th</sup> Grade Enrollment	Percent on FRL	Percent White non-Hispanic
Missouri Schools with 6 <sup>th</sup> Grade (n=722)	71,575	42.4%	75.2%
Participating Schools (n=48)	2,962	48.9%	60.4%

Source: Missouri Department of Elementary and Secondary Education, 2002-2003 School Year

Table 2.3

Age, Gender and Race/Ethnicity of 6<sup>th</sup> Grade Children Screened

Variable	Number of Children With Valid Data	Mean or Percent
Age		
Mean (Standard Deviation)	827	11.6 (0.59)
Range		8-13 years
Gender		
% Female	831	51.1%
% Male		48.9%
Race		
% White		77.7%
% African American		16.5%
% Asian or Pacific Islander	822	0.2%
% American Indian/Alaska Native		0.2%
% Multiracial		2.4%
% Other		2.8%
Ethnicity		
% Not Hispanic	820	96.2%
% Hispanic		3.8%

Table 2.4

Oral Health Status of 6<sup>th</sup> Grade Children Screened Unadjusted

	Number with Data	Percent
% with caries experience (any tooth)	818	45.1
% with caries experience (permanent teeth)	815	33.7
% with untreated decay (any tooth)	820	22.2
% with untreated decay (permanent teeth)	820	16.2
% with dental sealants	828	30.0
% with unsatisfactory oral hygiene	828	17.6
Treatment Need		
% with no obvious problem	831	77.5
% needing early dental care		19.9
% needing urgent dental care		2.6

NOTE: The 6<sup>th</sup> grade oral health survey was a convenience sample and not representative of all 6<sup>th</sup> graders in Missouri. For this reason, confidence intervals have not been generated.

Table 2.5

Oral Health Status of 6<sup>th</sup> Grade Children Screened Stratified by Race Unadjusted

Variable	White (n=639)	African American (n=136)
% with caries experience	41.8	53.7
% with untreated decay	16.9	44.9
% with dental sealants	30.0	27.9
% with poor oral hygiene	16.2	24.3
% needing treatment	15.8	50.0
% needing urgent treatment	2.0	3.7

NOTE: The screening data file contains records for 639 white and 136 African-American children. Because of missing data, the sample size for each individual oral health indicator varies.

Table 2.6

Oral Health Status of 6<sup>th</sup> Grade Children Screened Stratified by FRL Status of School Unadjusted

Variable	Percent of Students Participating in FRL Program			
	< 25.0%	25.0-49.9%	50.0-74.9%	≥ 75%
Number of schools	8	11	20	9
Number of children screened	240	216	231	131
% with caries experience	41.7	48.1	44.2	48.1
% with untreated decay	13.0	21.8	26.8	31.3
% with dental sealants	32.4	31.0	25.9	30.8
% with poor oral hygiene	16.8	13.0	20.7	21.4
% needing treatment	12.8	18.5	29.5	35.1
% needing urgent treatment	1.2	1.9	4.7	3.1

NOTE: Because of missing data, the sample size for each individual oral health indicator varies.

Table 3.1

Age, Gender and Race/Ethnicity of State School Children Screened

Variable	Number of Children With Valid Data	Mean or Percent
Age		
Mean (Standard Deviation)	442	13.0 (4.4)
Range		5-21 years
Gender		
% Female	481	41.2
% Male		58.8
Race		
% White		74.3
% African American		19.4
% Asian or Pacific Islander	443	2.3
% Multiracial		2.5
% Other		1.6
Ethnicity		
% Not Hispanic	406	96.1
% Hispanic		3.9

Table 3.2

Oral Health Status of State School Children Screened Unadjusted

	Number with Data	Percent
% with caries experience (any tooth)	415	46.0
% with untreated decay (any tooth)	397	26.2
% with dental sealants	402	8.2
% with unsatisfactory oral hygiene	411	43.1
Treatment Need		
% with no obvious problem	423	70.7
% needing early dental care		23.4
% needing urgent dental care		5.9

NOTE: Children enrolled in state schools ranged in age from 5-21 years. Because of this information on caries prevalence in the permanent and primary dentition may be misleading; therefore, the analysis has been limited to caries experience and untreated decay in both dentitions combined.

**Table 3.3**  
Oral Health Status of State School Children Screened Stratified by Age Group  
Unadjusted

	5-9 years (n=110)	10-14 years (n=157)	≥ 15 years (n=175)
% with caries experience (any tooth)	29.8	40.3	59.7
% with untreated decay (any tooth)	11.8	21.7	34.5
% with dental sealants	8.5	7.6	10.1
% with unsatisfactory oral hygiene	31.9	41.0	50.0
Treatment Need			
% with no obvious problem	81.1	74.0	64.3
% needing early dental care	15.6	22.1	27.3
% needing urgent dental care	3.3	3.8	8.4

**Table 4.1**  
Responses to Questionnaire Distributed to the Parents of Missouri's 3<sup>rd</sup> & 6<sup>th</sup> Graders  
Demographic Variables

Variable	Number of Respondents	Percent of Respondents
Q1: Race		
White		80.8
African-American		11.4
Asian or Pacific Islander	2,143	2.1
American Indian		0.9
Multi-Racial		4.0
Other		1.1
Q1: Ethnicity		
Hispanic	1,309	13.4
Non-Hispanic		86.6
Q8: Head of household education		
Not high school graduate	2,176	8.4
High school graduate		91.6
Q9A: School lunch participation		
Yes	2,259	62.6
No		37.4
Q9B: Payment for school lunch participation*		
Full-price	1,586	39.5
Reduced price		12.7
Free lunch		47.7
Free/Reduced school lunch participation*	2,533	43.9
Free/Reduced lunch		56.1

\* The two questions regarding school lunch participation were used to develop a variable on overall participation in the free and/or reduced price school lunch program. This was done because many parents who checked "yes" on the school lunch program question, checked "full-price" on the question regarding payment.

**Table 4.2**  
Responses to Questionnaire Distributed to the Parents of Missouri's 3<sup>rd</sup> & 6<sup>th</sup> Graders  
Dental Visit and Insurance Variables

Variable	Number of Respondents	Percent of Respondents
Q3: Need to visit dental office in last 12 months		
Yes – for routine checkup		59.8
Yes – for other services	2,187	18.2
No		22.4
Q4: Child missed school for dental appointment		
Yes	2,259	20.5
No		79.5
Q4: Child missed school for dental pain		
Yes	2,259	11.7
No		88.3
Q5: Wait for dental appointment		
Less than 1 week		24.5
7-30 days	1,642	39.8
30-45 days		14.8
45-60 days		8.8
More than 60 days		12.1
Q6: One-way travel to dental appointment		
Less than 10 miles		56.2
10-20 miles	1,798	22.6
20-30 miles		7.7
30-40 miles		6.5
More than 40 miles		7.0
Q7A: Has dental insurance		
Yes	2,259	76.7
No		23.3
Q7B: Type of dental insurance		
Private	1,753	52.6
Medicaid		40.2
Other		7.2

**Table 4.3**  
Responses to Questionnaire Distributed to the Parents of Missouri's 3<sup>rd</sup> & 6<sup>th</sup> Graders  
Stratified by Race

Variable	White	African-American
Need to visit dental office in last 12 months		
Yes – for routine checkup	61.7	55.3
Yes – for other services	18.5	15.6
No	19.8	29.1
Child missed school for dental appointment (% yes)	21.8	12.3
Child missed school for dental pain (% yes)	11.8	11.9
Q5: Wait for dental appointment		
Less than 1 week	23.4	29.1
7-30 days	41.1	38.6
30-45 days		19.0
45-60 days	9.0	6.3
More than 60 days	12.9	6.9
Q6: One-way travel to dental appointment		
Less than 10 miles	54.8	65.0
10-20 miles	22.1	28.0
20-30 miles		8.1
30-40 miles	6.6	3.0
More than 40 miles	8.3	1.0
Has dental insurance (% yes)	77.5	85.7
Type of dental insurance		
Private	57.6	34.0
Medicaid	35.2	60.0
Other	7.3	6.0
Head of household is high school graduate (% yes)	93.5	85.9
Participates in free/reduced lunch program (% yes)	35.8	76.6

**Table 4.4**  
Responses to Questionnaire Distributed to the Parents of Missouri's 3<sup>rd</sup> & 6<sup>th</sup> Graders  
Stratified by Participation in the School Lunch Program

Variable	Full-Price or No Participation	Free or Reduced Price Meal Participation
Need to visit dental office in last 12 months		
Yes – for routine checkup	68.3	47.8
Yes – for other services	16.3	20.6
No	15.4	31.6
Child missed school for dental appointment (% yes)	19.5	21.7
Child missed school for dental pain (% yes)	10.7	12.6
Q5: Wait for dental appointment		
Less than 1 week	24.8	23.6
7-30 days	44.5	33.3
30-45 days	11.9	19.1
45-60 days	6.7	11.9
More than 60 days	12.1	12.0
Q6: One-way travel to dental appointment		
Less than 10 miles	61.0	48.5
10-20 miles	21.8	24.1
20-30 miles	6.9	9.0
30-40 miles	4.9	8.9
More than 40 miles	5.4	9.5
Has dental insurance (% yes)	75.9	78.1
Type of dental insurance		
Private	80.1	19.1
Medicaid	12.1	74.5
Other	7.7	6.5
Head of household is high school graduate (% yes)	97.5	83.6
Child is white (% yes)	89.1	69.0

**Table 4.6**  
Responses to Questionnaire Distributed to the Parents of Missouri's State School Children Demographic Variables

Variable	Number of Respondents	Percent of Respondents
Q1: Race		
White		88.5
African-American		8.7
Asian or Pacific Islander	288	1.4
American Indian		1.0
Multi-Racial		1.7
Other		0.7
Q1: Ethnicity		
Hispanic	213	4.2
Non-Hispanic		95.8
Q8: Head of household education		
Not high school graduate	287	15.0
High school graduate		85.0
Q9A: School lunch participation		
Yes	298	71.8
No		28.2
Q9B: Payment for school lunch		
Full-price	225	32.0
Reduced price		20.0
Free lunch		48.0
Free/Reduced school lunch participation*		
Free/Reduced lunch	295	51.9
Full price or no participation		48.1

\* The two questions regarding school lunch participation were used to develop a variable on overall participation in the free and/or reduced price school lunch program. This was done because many parents who checked "yes" on the school lunch program question, checked "full-price" on the question regarding payment.

**Table 4.5**  
Responses to Questionnaire Distributed to the Parents of Missouri's 3<sup>rd</sup> & 6<sup>th</sup> Graders Stratified by Insurance Type

Variable	Medicaid	Private Insurance
Need to visit dental office in last 12 months		
Yes – for routine checkup	49.9	70.7
Yes – for other services	22.3	17.1
No	27.8	12.2
Child missed school for dental appointment (% yes)	24.3	20.8
Child missed school for dental pain (% yes)	15.0	12.1
Q5: Wait for dental appointment		
Less than 1 week	17.9	28.1
7-30 days	32.4	43.8
30-45 days	20.2	12.6
45-60 days	14.5	8.1
More than 60 days	15.0	9.4
Q6: One-way travel to dental appointment		
Less than 10 miles	47.0	63.0
10-20 miles	21.6	23.3
20-30 miles	9.4	6.2
30-40 miles	10.4	4.0
More than 40 miles	11.6	3.5
Head of household is high school graduate (% yes)	82.8	98.0
Participates in free/reduced lunch program (% yes)	83.5	16.4
Child is white (% yes)	71.2	86.6

**Table 4.7**  
Responses to Questionnaire Distributed to the Parents of Missouri's State School Children Dental Visit and Insurance Variables

Variable	Number of Respondents	Percent of Respondents
Q3: Need to visit dental office in last 12 months		
Yes – for routine checkup	294	49.7
Yes – for other services		19.7
No		30.6
Q3: Child missed school for dental appointment		
Yes	298	30.5
No		69.5
Q4: Child missed school for dental pain		
Yes	298	4.0
No		96.0
Q5: Wait for dental appointment		
Less than 1 week		18.1
7-30 days	199	45.2
30-45 days		12.1
45-60 days		4.5
More than 60 days		20.1
Q6: One-way travel to dental appointment		
Less than 10 miles		34.4
10-20 miles	224	17.4
20-30 miles		16.8
30-40 miles		8.9
More than 40 miles		20.5
Q7A: Has dental insurance		
Yes	298	85.9
No		14.1
Q7B: Type of dental insurance		
Private	265	37.0
Medicaid		59.2
Other		3.8

# Oral Health

## Footnotes:

- <sup>1</sup> The percent of children with untreated decay is assumed to be an under estimation because radiographs (x-rays) were not taken.
- <sup>2</sup> U.S. Department of Agriculture, Child Nutrition Programs, School Lunch Program, Income Eligibility Guidelines SY 2004-2005, <http://www.fns.usda.gov/cnd/governance/notices/iegs/IEGs04-05.pdf>.
- <sup>3</sup> U.S. Department of Agriculture, Child Nutrition Programs, School Lunch Program, Income Eligibility Guidelines SY 2004-2005, <http://www.fns.usda.gov/cnd/governance/notices/iegs/IEGs04-05.pdf>.



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